

ROCKY FLATS PLANT
EMD OPERATING
PROCEDURES MANUAL
VOL I: FIELD OPERATIONS

Manual No.: 5-21000-OPS-FO
New Manual No.: 4-11000-ER-OPS-FO
Procedure No.: Table of Contents, Rev 61
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Organization: Environmental Management

THIS IS ONE VOLUME OF A SIX VOLUME SET WHICH INCLUDES:

VOLUME I: FIELD OPERATIONS (FO)
VOLUME II: GROUNDWATER (GW)
VOLUME III: GEOTECHNICAL (GT)
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ADMINISTRATIVE

DOCUMENT CLASSIFICATION REVIEW WAIVER
PER R.B. HOFFMAN, CLASSIFICATION OFFICE
JUNE 11, 1991

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DCN 92.05	Addition of HPGe	2	11/24/92
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FO.17	Determining Out-Of-Specification Analytical Results for Environmental Samples		To Be Added
FO.18	Environmental Sample Radioactivity Content Screening	1	05/12/92
DCN 93.01	Clarification of Procedure	1	01/11/93
FO.19	Base Laboratory Work	2	05/12/92
FO. 23	Management of Soil and Sediment Investigative Derived Materials (IDM)	0	01/11/94
94-DMR-000137	Training Requirements Clarification	0	01/28/94
94-DMR-000148	Section FO.23 Modifications	0	02/09/94
FO.25	4-B11-ER-OPS-FO.25 Shipment of Radioactive Materials Samples	0	12/01/93
FO.27	4-BO1-ER-OPS-FO.27 Collection of Floor/Equipment Hot Water Rinsate Samples	0	07/26/93
DCN 93.01	VOC Preservatives	0	8/11/93
DCN 93.02	Fresh Water Samples	0	8/30/93

Refer to 1-A01-PPG-001 for Processing Instructions.
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8. Item	9. Page	10. Step
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11. Proposed Modifications

			This DMR is being issued as an interim measure while a procedure revision is being processed to allow RFP/ERM to meet the applicable legal requirements for groundwater monitoring.
1	1	Header	Changed page number and date in header.
2	1	TOC	Changed page numbering in TOC.
3	1	TOC	Strikeout 8.1 in TOC.
4	2	3.0	Replaced word in paragraph 3.
5	3	3.0	Added new paragraph at top of page 3; added sentence at the end of para. 2 and para. 3.
6	5	5.1	Strikeout sixth bulleted sentence.
7	6	6.0	Added sentence in Contaminated paragraph (Well Type).
8	9	6.0	Added sentence in first paragraph.
9	11	8.1	Strikeout section 8.1; Replaced with new text.

12. Justification (Reason for Modification, EJO#, TP#, etc.)

the changes required to meet applicable requirement for groundwater monitoring and reflect current field conditions.

If modification is for a new procedure or a revision, list concurring disciplines in Block 13, and enter N/A in Blocks 14 and 15. If modification is for any type of change or a cancellation, organizations are listed in Block 13, then Concurror prints, and signs in Block 14, and dates in Block 15.

[illegible]

16. Originator's Supervisor (print/sign/date)

M. Brooks / *M. C. Brooks* 2-17-94

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20. Requested Completion Date

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22 Associated Review?

Yes ☐ No ☒

3. ORC Review

ORC review NOT required.

24. Responsible Manager (print, sign, date)

Mark Levin: Edwin H. Meyer, Stephen H. Singer

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Category 2

TITLE:
HANDLING OF PURGE AND
DEVELOPMENT WATER

Approved By:

Signature on File
(Name of Approver)

1/1
(Date)

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2.0 PURPOSE AND SCOPE

This standard operating procedure (SOP) describes the procedures that will be used for containing, moving, and emptying wastewater generated during well ~~sampling~~, development, and testing at the Rocky Flats Plant (RFP).

3.0 RESPONSIBILITIES AND QUALIFICATIONS

Personnel using light or heavy equipment, scientific monitoring devices, or operating ~~US government company~~ vehicles must have appropriate training and/or licenses.

The subcontractor's site manager is responsible for coordinating the removal and transfer of all environmental materials from the project work area.

The subcontractor is also responsible for ~~segregating uncontaminated and potentially contaminated moving~~ purge and development water at the well in temporary ~~to~~ holding containers, and transferring this water to appropriate destinations as described in this SOP. ~~located at the central EG&G decontamination facility.~~

It is the subcontractor's site manager's responsibility to report as soon as possible to the EG&G project manager or a designated EG&G representative any damage incurred to a ~~holding tank or drum~~. Types of damage include holes, damage to the lid seal, or any other problem that may compromise ~~container drum~~ integrity. Damaged ~~containers drums~~ must have their contents transferred to an undamaged ~~container drum~~.

The subcontractor's site manager will assign personnel to conduct weekly inspections of all the ~~containers drums~~ issued to the subcontractor until relinquished to EG&G. These inspections will ensure that ~~container drum~~ integrity is maintained.

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EG&G's Environmental Operations Management (EOM) personnel are responsible for accepting uncontaminated purge and development water at the main decontamination facility; treating acceptable purge and development water; and managing the storage of containers in the 90 day storage area.

Radiological Engineering-approved subcontractor Health and Safety Specialists are responsible for conducting radiation screenings of equipment, samples, and personnel before they leave Radiologically Controlled Areas (RCA) in accordance with SOP FO.16, Field Radiological Measurements and applicable EMRGs. ~~the work area.~~

EG&G's Geosciences ~~Waste Operations~~ personnel and the subcontractor's site manager are responsible for maintaining the quarterly updated listing of well types (uncontaminated, contaminated, and uncharacterized). Waste generators are responsible for the proper segregation and handling of purge and development water according to the listing of well types and completing appropriate documentation.

EG&G Waste Operations personnel are responsible for the long term the collection, movement, storage, treatment, and disposal of EG&G EOM non-treatable environmental liquids following removal of the containers from the 90 day storage area. ~~from the main decontamination facility.~~

4.0 REFERENCES

4.1 SOURCE REFERENCES

The following is a list of references reviewed prior to the writing of this procedure:

EG&G. Policies: Rocky Flats Plant. Use and Color Coding of Drums. RFPM MAT 20-005. November 3, 1989.

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Environmental Protection Agency (EPA). A Compendium of Superfund Field Operations Methods.
EPA/540/P-87/001. December 1987.

RCRA Facility Investigation Guidance. Interim Final. May 1989.

4.2 INTERNAL REFERENCES

Related SOPs cross-referenced in this SOP are:

- SOP FO.3, General Equipment Decontamination
- SOP FO.7, Handling of Decontamination Water and Wash Water
- SOP FO.8, Handling of Drilling Fluids and Cuttings
- SOP FO.10, Receiving, Labeling, and Handling Environmental Materials Containers
- SOP FO.12, Decontamination Facility Operations
- SOP FO.15, Photoionization Detectors (PIDs) and Flame Ionization Detectors (FIDs)
- SOP FO.16, Field Radiological Measurements
- SOP GW.02, Well Development
- SOP GW.04, Slug Testing
- SOP GW.06, Groundwater Sampling
- SOP GW.08, Aquifer Pumping Tests

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5.0 EQUIPMENT

5.1 EQUIPMENT NEEDED TO HANDLE PURGE AND DEVELOPMENT WATER

The following is a list of equipment needed for the proper handling of purge and development water:

- ~~55-gallon, open-top (removable top), gray drums or liquid~~ Purge and development water containers appropriately sized for the task
- Hand, electric, or gas powered pumps and associated tubing
- An organic vapor detector (OVD)
- A field radiation monitor
- Shovel (scoop type)
- ~~Clear plastic sheeting for placing around the well head to prevent cross contamination of the surface~~
- Splash protective and personal protective equipment as required by the site-specific Health and Safety Plan

~~Equipment used for purge and development water handling, such as mobile containers, will be dedicated for the specific purge water types listed in Section 6.0 in order to minimize the potential for cross contamination between handling systems, and contamination of clean water delivered to the decontamination facility.~~

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6.0 HANDLING OF PURGE AND DEVELOPMENT WATER

~~Water used during the development of~~ Excess water produced during groundwater withdrawals from an environmental monitoring well is considered purge and development water. This definition includes all excess water that is produced after a well is installed related to such activities as sampling, well development, and aquifer testing. ~~Monitoring well development is the process by which the drilling fluids and mobile particulates are removed from within and adjacent to newly installed wells. This process can also be used to remove sediment or other built-up materials from older wells.~~

Purge and development water generated during groundwater monitoring and testing operations will be segregated and handled by field crews according to the presence or absence of known hazardous constituents (determined from previous sample analyses) at each well. A quarterly updated listing of uncontaminated, contaminated, and uncharacterized (new) monitoring wells, maintained by the ER Geosciences Division, identifies how purge and development water will be segregated and dispositioned on a well-by-well basis. The segregation and handling requirements of each type of well is described in more detail as follows:

<u>Well Type</u>	<u>Segregation and Handling Procedure</u>
Uncontaminated	Classification based on at least one quarter of recent analytical data. Segregate into truck-mounted "clean purge water-only" containers and deliver to environmental liquids holding tanks at the EG&G decontamination facility for final disposition.
Contaminated	Classification based on the known presence of hazardous constituents, as defined by RCRA, from recent analytical data. Segregate into truck or trailer-mounted "contaminated purge water-only" containers and sample

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for hazardous constituents (fast turn-around) when full. Submit the results of sample analyses to EG&G EOM for approval to treat the water at an RFP water treatment facility. Upon acceptance, the waste generator will deliver the purge water to an EG&G-designated RFP water treatment facility. If a treatment facility is unavailable or the water is deemed unacceptable for treatment, the waste generator will off-load the contaminated purge water into 55-gallon drums or approved storage vessel at an EG&G-designated 90 day storage area. Each drum or approved storage vessel will be labeled according to SOP FO.10. Waste/residue travelers are required and must be signed by the waste generator. Final disposition of purge water to be determined based on receipt and review of analytical results by EG&G.

Uncharacterized

Classification based on a lack of adequate analytical data, usually associated with new or previously unsampled monitoring wells. Segregate into truck or trailer-mounted "uncharacterized purge water-only" containers and immediately sample for hazardous constituents (fast turn-around) when full. The final disposition of purge water will be determined by EG&G based on receipt and review of analytical results. Upon direction from EG&G, the subcontractor will off-load the container either at the EG&G decontamination facility (uncontaminated), a designated RFP water treatment facility (contaminated, treatable) or 90 day storage area (contaminated, untreatable). If a treatment facility is unavailable, the contaminated purge water will be off-loaded into 55-gallon drums or other approved vessels at an EG&G-designated 90 day storage area pending final disposition.

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~~Each project work area will be characterized by EG&G prior to any field activity. Work area characterizations will be based on the historical background of the work area and include the chemical results of previous soil and groundwater analyses and the results of field radiological surveys conducted by Radiological Engineering approved subcontractor Environmental Health and Safety Specialists. Work areas associated with the Environmental Management (EM) program field operations fall into two characterizations: potentially contaminated and not potentially contaminated. Work areas currently characterized as potentially contaminated include the following:~~

- ~~• Individual Hazardous Substance Sites (IHSSs)~~
- ~~• Identified Groundwater Plume Areas~~
- ~~• Americium Zone at OU No. 2~~
- ~~• Protected Areas (PA)~~

~~See SOP FO.10, Receiving, Labeling, and Handling Environmental Materials Containers for specific work areas currently characterized as potentially contaminated. Appendix A (SOP FO.10) is a list of the IHSSs at RFP.~~

~~Solid environmental materials generated during EM field operations will be containerized as they are generated in 55 gallon or 30 gallon gray drums until associated samples are characterized. Environmental liquids will be moved to holding tanks located at the main decontamination facility (see SOP FO.12, Decontamination Facility Operations). The use of field monitors, including an OVD and radiation monitor, for the detection of volatile organics and radionuclides is discussed in SOPs FO.8, Handling of Drilling Fluids and Cuttings; FO.15, Photoionization Detectors (PIDs) and Flame Ionization Detectors (FIDs); and FO.16, Field Radiological Measurements.~~

~~The types of contamination which may be encountered within potentially contaminated work areas include the following:~~

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- ~~Low level radioactively contaminated substances~~
- ~~Nonradioactive RCRA regulated hazardous (hazardous) substances~~
- ~~Mixed (low level radioactive and hazardous substances)~~

Regardless of the work area characterization, all purge and development water will be placed in the liquid holding tanks at the main decontamination facility. In the field, the ~~When necessary,~~ purge and development water will be temporarily stored in 55-gallon, open top, gray bung type, black and white drums or appropriately sized containers. Liquid Purge and development water containers in 90 day storage areas will be marked with the words "NONPOTABLE PENDING ANALYSIS" as described in SOP FO.10, Receiving, Labeling, and Handling Environmental Materials Containers. Waste generator personnel will prepare and sign a waste/residue traveler for each drum to be maintained at the 90 day storage area. Field Waste generator field personnel will decant the environmental liquids purge and development water from one drum (or container) to another (or from a trough to a drum or transfer container) prior to moving if the amount of sludge or sediment within the environmental liquids purge and development water is substantial. The In this case, the residual sediment will be drummed as solid environmental materials (see SOP FO.8, Handling of Drilling Fluids and Cuttings). Otherwise, residual sediments will be handled as part of normal drum and transfer container decontamination operations as described in Section 7.0. Characterization will be based on analytical results of the samples corresponding to the cuttings associated with the drill site and provided to EG&G EOM by the waste generator for final handling.

The liquid Contaminated purge and development water containers will be moved from the 90 day storage area to EG&G-designated destination by EG&G or subcontractor personnel. EG&G's main decontamination facility by the subcontractor. The decontamination facility will have an area specifically designed for environmental liquids. The environmental liquids area includes a process for separating solids from the liquids. The subcontractor will empty the entire container's contents into this environmental liquids area. (See SOP FO.12, Decontamination Facility Operations, for details pertaining to the environmental liquids area.)

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The liquid containers will be decontaminated between each use. If ~~gray~~ drums are used, pertinent information regarding the use of ~~gray~~ drums will be documented on the Drum Field Log Form (Form FO.10A, see Section 8.0 - Documentation).

~~The drums containing residual sediment~~ Residual sediment drums will be brought to the appropriate 90 day storage area and transferred to the custody of EG&G Environmental Operations Management personnel once all associated paperwork is completed and a drum inspection is completed and accepted. ~~drum transfer area at the main decontamination facility and transferred to the custody of EG&G Waste Operations personnel.~~

~~Environmental liquid containers will be decontaminated between each use.~~

7.0 DECONTAMINATION

Equipment used for ~~handling purge and development water from contaminated or uncharacterized wells~~ the development of a monitoring well located within a potentially contaminated work area will be decontaminated according to SOP FO.3, General Equipment Decontamination. ~~If positive readings above background were detected during field monitoring within not potentially contaminated work areas, equipment will be decontaminated according to SOP FO.3. In not potentially contaminated work areas, where no verified detections were encountered during field monitoring, the equipment used~~ Equipment used for handling purge and development water from ~~uncontaminated wells~~ will be power sprayed and rinsed in the field in accordance with SOP FO.3, General Equipment Decontamination.

Decontamination and wash water will be disposed according to SOP FO.7, Handling of Decontamination Water and Wash Water.

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8.0 DOCUMENTATION

Documentation of drum inspections are done on the Drum Inspection Form (Form FO.10B). A Drum Field Log Form (Form FO.10A) is kept on each drum used to move environmental liquids. Entries made on the Drum Field Log Form may be supported with entries in a field logbook. The preparation of a waste/residue traveler is also required for each drum.

Management of all records is consistent with 1-77000-RM-001, Records Management Guidance For Records Sources.

The records generated as a result of this procedure are considered quality records. These records are managed in accordance with 2-G18-ER-ADM-17.01, Quality Assurance Records Management.

The records generated as a result of this procedure are also considered part of the Administrative Record, and are managed in accordance with 3-21000-ADM-17.02, Administrative Records Screening and Processing in addition to 2-G18-ER-ADM-17.01.

There are no nonquality records generated by this procedure.

The Site Manager ensures that the following quality-related records are transmitted to the Document Control Center in accordance with 2-G18-ER-ADM-17.01:

- Drum Inspection Form (Form FO.10B)
- Drum Field Log Form (Form FO.10A)
- Waste/residue traveler
- Field logbook

The Site Manager also ensures that the following records are included as part of the Administrative Record in accordance with 3-21000-ADM-17.02:

- Drum Inspection Form (Form FO.10B)

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Category 2

Environmental Management

Drum Field Log Form (Form FO.10A)

8.1 ~~DRUM FIELD LOG FORM~~

~~A Drum Field Log Form (Form FO.10A) will be kept on each gray drum used to move environmental liquids. The Drum Field Log Form will be used as a "cradle to grave" record. The following information will be documented on the form:~~

- ~~• Drum ID Number~~
- ~~• Date of issuance~~
- ~~• Location in field~~
- ~~• Contents~~
- ~~• Fill date~~
- ~~• Date of decontamination and location~~
- ~~• Date returned to EG&G~~

~~Entries made on the Drum Field Log Form may be supported with entries in a field logbook. The preparation of a waste/residue traveler is required for each drum.~~